independently from groups that include CR^7R^8 , $CR^7R^8CR^7R^8$, $CR^7=CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

The dotted line indicates the presence of either a single or double bond;

E is NR7:

G is OR7.

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In another sub-embodiment, a structure of the formula (IX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, aikyì, alkenyì, aikynyì, cycloaikyì, cycloaikenyì, aryì, alkaryì, aryialkyì, heterocyclic, sulfonyì, sulfanyì, sulfanyì, sulfamonyì, carboxylic acid, amide, nitro, cyano, azide, phosphonyì, phosphinyì, phosphinyi, phosphine, carbamate, ester, alkoarbonyì, carbonyì, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S);

 R^1 and R^2 , R^2 and R^3 , R^3 and R^4 , R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8 , $CR^7R^8CR^7R^8$, $CR^7=CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

The dotted line indicates the presence of either a single or double bond;

E is NR?;

G is NR7R8.

In another sub-embodiment, a structure of the formula (IX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^{3} is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^{7} (X = O, NR^{8} or S):

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfanonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S):

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR²R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁸O and CR⁷R⁸NR⁷;

The dotted line indicates the presence of either a single or double bond;

E is NR7;

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G is SR7.

In a particular embodiment of the present invention, the compounds of the formula

(IX) are the following species:

$ \begin{array}{cccc} R^{1} & & & & \\ R^{2} & & & & \\ R^{2} & & & & \\ R^{3} & & & & \\ \end{array} $ (IX)									
G	E	R'	\mathbb{R}^2	R³	R4	RS	\mathbb{R}^{6}		
OH	Ō	Me	H	H	H	Me	Me		
OH	0	i-Pr	Н	H	H	Me	Ме		

OH O Ph H H H H Me M OH O Me Me H H Me	$ \begin{array}{cccc} R^{1} & & & \\ B & & & \\ R^{2} & & & \\ R^{2} & & & \\ \end{array} $									
OH O Ph H H H H Me M OH O Me Me H H Me										
OH O Me Me H H Me Me OH O i-Pr Me H H Me Me OH O Ph Me H H Me Me OH O Me H Me H Me Me OH O i-Pr H Me H Me Me OH O i-Pr H H Me Me Me OH O Me H CH ₂ Ph H Me Me OH O i-Pr H CH ₂ Ph H Me Me	G	E	Ri	\mathbb{R}^2	R³	R'	RS	R		
OH O i-Pr Me H H Me M OH O Ph Me H H Me M OH O I-Pr H Me H Me M OH O Ph H Me H Me M OH O I-Pr H Me H Me M OH O Ph H Me M Me M OH O i-Pr H H Me Me M OH O i-Pr H H Me Me M OH O Ph H H Me Me M	OH	0	Ph	H	H	H	Me	Me		
OH O Ph Me H H Me M OH O Me H Me H Me	OH	0	Me	Me	Н	H	Me	Me		
OH O Me H Me H Me M Me Me	OH	0	j-Pr	Me	H	Н	Me	Me		
OH O i-Pr H Me H Me M OH O Ph H Me H Me M OH O Me H H Me Me M OH O i-Pr H H Me Me M OH O Ph H H Me Me M OH O Ph H H Me Me M OH O Ph H H Me Me M OH O Me H CH ₂ Ph H Me M	OH	0	Ph	Me	H	H	Me	Me		
OH O Ph H Me H Me M OH O Me H H Me Me M OH O I-Pr H H Me Me M OH O Ph H H Me Me M OH O Ph H H Me Me M OH O Me H CH2Ph H Me M OH O I-Pr H CH2Ph H Me M	OH	0	Me	H	Me	Н	Me	Me		
OH O Me H H Me Me M OH O :-Pr H H Me Me M OH O Ph H H Me Me M OH O Me H CH2Ph H Me M OH O i-Pr H CH2Ph H Me M	OH	0	i-Pr	H	Me	H	Me	Me		
OH O i-Pr H H Me Me Me OH O Ph H H Me Me M OH O Me H CH ₂ Ph H Me M OH O i-Pr H CH ₂ Ph H Me M	OH	0	Ph	Н	Me	H	Me	Me		
OH O Ph H H Me Me M OH O Me H CH ₂ Ph H Me h OH O i-Pr H CH ₂ Ph H Me h	OH	0	Me	R	H	Me	Me	Me		
OH O Me H CH ₂ Ph H Me h OH O i-Pr H CH ₂ Ph H Me h	OH	0	i-Pr	Н	H	Me	Me	Me		
OH O i-Pr H CH ₂ Ph H Me h	OH	0	Ph	H	Н	Me	Me	Me		
	OH	0	Me	H	CH₂Ph	H	Me	Me		
OH O Ph H CH3Ph H Me N	OH	0	i-Pr	H	CH ₂ Ph	H	Me	Me		
	OH	0	Ph	H	CH ₂ Ph	H	Me	Me		
OH CH ₂ Me H H H Me P	OH	CH ₂	Me	Н	Н	Н	Mc	Ме		
OH CH ₂ i-Pr H H H Me P	OH	CH ₂	i-Pr	H	Н	H	Me	Me		
OH CH ₂ Ph H H Me I	OH	CH ₂	Ph	Н	H	H	Ме	Me		
OH CH ₂ Me Me H H Me I	OH	CH ₂	Me	Me	H	Н	Me	Me		
OH CH2 i-Pr Me H H Me I	OH	CH ₂	i-Pr	Me	H	H	Me	Me		
OH CH ₂ Ph Me H H Me I	ОН	CH ₂	Ph	Me	н	H	Me	Me		

	$ \begin{array}{cccc} R^1 & & & & \\ R^2 & & & & \\ R^2 & & & & \\ R^3 & & & & & \\ \end{array} $										
					(IX)						
C	E	R'	R2	R'	R*	RS	R				
OH	CH ₂	Me	Н	Me	H	Me	Me				
OH	CH ₂	i-Pr	H	Me	H	Me	Me				
OH	CH ₂	Ph	Ħ	Me	H	Me	Me				
OH	CH ₂	Me	Ħ	H	Me	Me	Me				
OH	CH ₂	í-Pr	Н	H	Me	Me	Me				
OH	CH ₂	Ph	H	Н	Me	Me	Me				
OH	CH ₂	Me	H	CH ₂ Ph	Н	Me	Me				
OH	CH ₂	i-Pr	H	CH ₂ Ph	ы	Me	Me				
OH	CH ₂	Ph	Н	CH ₂ Ph	H	Me	Me				

In a sub-embodiment, a structure of the formula (X) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

5 A. is O;

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R¹ is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR¹¹ (X = O, NR¹⁴ or S):

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸, R⁹, R¹⁰, R¹¹, R¹², R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁶, R¹⁷, R¹⁸, R¹⁹, R¹⁸, R²⁰, R²¹ and R²³ independently are selected from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic,

sulfonyl, sulfanyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR¹³ (X = O, NR¹² or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR¹³R¹⁴ groups, connected by a tether, independently selected from CR¹⁵R¹⁶, CR¹⁵R¹⁶CR¹⁷R¹⁸, CR¹⁵ECR¹⁶, CR¹⁵R¹⁶O or CR¹⁵R¹⁶NR¹⁷;

the dotted line indicates the presence of either a single or double bond, wherein in the presence of a single bond, the valences are completed with hydrogens.

In another sub-embodiment, a structure of the formula (X) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

A is NR7:

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 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^{13} (X = O, NR^{14} or S):

R², R², R⁴, R⁵, R⁶, R⁷, R⁸, R⁹, R¹⁰, R¹¹, R¹², R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R¹⁹, R²⁰, R²¹, R²² and R²³ independently are selected from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfamyl, sulfamyl, sulfamyl, sulfamyl, sulfamyl, sulfamyl, sulfamyl, phosphonyl, phosphonyl, phosphonyl, phosphonyl, phosphonyl, phosphonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR¹¹ (X = O, NR¹² or S);

 R^1 and R^2 , R^2 and R^3 , R^3 and R^4 , R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two $CR^{13}R^{14}$ groups, connected by a tether, independently selected from $CR^{15}R^{16}$, $CR^{15}R^{16}CR^{17}R^{18}$, $CR^{15}=CR^{15}$, $CR^{15}R^{16}O$ or $CR^{15}R^{16}NR^{17}$;

the dotted line indicates the presence of either a single or double bond, wherein in the presence of a single bond, the valences are completed with hydrogens.

In another sub-embodiment, a structure of the formula (X) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

A is S:

S

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 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^{13} (X = O, NR^{14} or S);

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸, R⁹, R¹⁰, R¹¹, R¹², R¹², R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R¹⁹, R²⁰, R²¹, R²² and R²³ independently are selected from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR¹¹ (X = O. NR¹² or S):

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR¹³R¹⁴ groups, connected by a tether, independently selected from CR¹⁵R¹⁶, CR¹⁵R¹⁶CR¹⁷R¹⁸, CR¹⁵=CR¹⁶, CR¹⁵R¹⁶O or CR¹⁵R¹⁶NR¹⁷;

the dotted line indicates the presence of either a single or double bond, wherein in the presence of a single bond, the valences are completed with hydrogens.

In a sub-embodiment, a structure of the formula (XI) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphiryl, phosphiryl, phosphine, carbamate, ester,

alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or $XR^7(X=0,NR^8 \text{ or S})$.

 $R_{\rm J}$ and $R_{\rm 3}$, $R_{\rm 2}$ and $R_{\rm 3}$, $R_{\rm 3}$ and $R_{\rm 4}$, $R_{\rm 4}$ and $R_{\rm 5}$ and $R_{\rm 5}$ and $R_{\rm 6}$ can also each be comprised of one or two CR_7R_8 groups, connected by a tether, selected independently from groups that include CR_7R_8 , $CR_7R_8CR_7R_8$, $CR_7R_8CR_7R_8$, $CR_7R_8CR_7R_8$.

The dotted line indicates the presence of either a single or double bond;

E is selected from the groups that include CR7R8, O, S or NR7;

A is selected from the groups that include O, NR7 or S.

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In another sub-embodiment, a structure of the formula (XI) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X=0, NR^8

or S).

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

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R₁ and R₂, R₂ and R₃, R₃ and R₄, R₄ and R₅ and R₅ and R₆ can also each be comprised of one or two CR₇R₈ groups, connected by a tether, selected independently from groups that include CR₇R₈, CR₇R₆CR₇R₆, CR₇=CR₈, CR₇R₈O and CR₇R₈NR₇; and

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The dotted line indicates the presence of either a single or double bond;

E is O:

A is O.

In another sub-embodiment, a structure of the formula (XI) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S).

R₁ and R₂, R₂ and R₃, R₃ and R₄, R₄ and R₅ and R₅ and R₆ can also each be comprised of one or two CR₇R₃ groups, connected by a tether, selected independently from groups that include CR₇R₈, CR₇R₆CR₉R₆, CR₇=CR₈, CR₇R₆CD and CR-R₆NR₇.

The dotted line indicates the presence of either a single or double bond;

B is O;

S

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A is NR7.

In another sub-embodiment, a structure of the formula (XI) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

 R^{2} , R^{3} , R^{4} , R^{5} , R^{6} , R^{7} , R^{8} are selected independently from the groups that include invirogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkanyl, arylalkyl,

heterocyclic, sulfonyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁸O and CR⁷R⁸NR⁷; and

The dotted line indicates the presence of either a single or double bond;

10 E is O;

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A is S.

In another sub-embodiment, a structure of the formula (XI) is given wherein the compound or its pharmaceutically acceptable salts or produce is defined as follows:

 \mathbb{R}^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, allcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or $X\mathbb{R}^7$ (X = O, $N\mathbb{R}^8$ or S).

R², R³, R⁴, R⁵, R⁶, R⁷ and R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR² (X = O, NR⁸ or S).

R¹ and R², R² and R³, R³ and R⁴, R⁸ end R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR²R⁶ groups, connected by a tether, selected independently from groups that include CR²R⁸, CR²R²R², CR²=CR⁸, CR²R⁸O and CR²R⁸NR².

The dotted line indicates the presence of either a single or double bond;

E is CR7R8:

A is O.

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In another sub-embodiment, a structure of the formula (XI) is given wherein the compound or its pharmaceutically acceptable salts or produce is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkuryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X=O, NR^8 or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR²R⁸ groups, connected by a tether, selected independently from groups that include CR²R⁸, CR⁷R⁸CR₂R⁸, CR⁷=CR⁸, CR²R⁸O and CR²R⁸NR²; and

The dotted line indicates the presence of either a single or double bond;

20 E is CR⁷R⁸;

A is NR7.

In another sub-embodiment, a structure of the formula (XI) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^{\dagger} is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^{7} (X = O, NR^{8} or S);

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphenyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbotyvdrate or XR⁷ (X = O, NR⁸ or S):

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR²R⁸ groups, connected by a tether, selected independently from groups that include CR²R⁸, CR²R⁸CR²R⁸, CR⁷=CR⁸, CR²R⁸O and CR²R⁸NR⁷;

The dotted line indicates the presence of either a single or double bond;

E is CR7R8;

A is S.

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In another sub-embodiment, a structure of the formula (XI) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S):

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R₁ and R₂, R₂ and R₃, R₃ and R₄, R₄ and R₅ and R₅ and R₆ can also each be comprised of one or two CR₇R₈ groups, connected by a tother, selected independently from groups that include CR₇R₈, CR₇R₈CR₇R₈, CR₇=CR₅, CR₇R₈O and CR₃R₈NR₃;

The dotted line indicates the presence of either a single or double bond;

E is S;

A is O.

S

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In another sub-embodiment, a structure of the formula (XI) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S):

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkoarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR⁷R⁸, CR⁷m^CCR⁸, CR⁷R⁸O and CR⁷R⁸NR⁷;

The dotted line indicates the presence of either a single or double bond;

E is S:

A is NR?

25 In another sub-embodiment, a structure of the formula (XI) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R¹ is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, beterocyclic, ester, alkearbonyl, carbonyl, balide,

a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S):

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, stiffonyl, sulfanyl, sulfanenyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR⁷R², CR⁷=CR⁸, CR⁷R⁶O and CR⁷R⁸NR⁷;

The dotted line indicates the presence of either a single or double bond;

E is S;

15 A is S.

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In another sub-embodiment, a structure of the formula (XI) is given wherein the compound or its pharmaceutically acceptable salts or produce is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or SR).

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include lrydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X=0, NR^8 or S);

 R^1 and R^2 , R^2 and R^3 , R^3 and R^4 , R^4 and R^5 and R^5 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected

independently from groups that include CR^7R^8 , $CR^7R^8CR^7R^8$, $CR^7_{mc}CR^8$, CR^7R^8O and $CR^7R^8NR^7$:

The dotted line indicates the presence of either a single or double bond;

E is NR7;

A is O.

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In another sub-embodiment, a structure of the formula (XI) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^{1} is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^{7} (X = O, NR^{8} or S);

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfanyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X=0, NR^8 or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR²R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁶O and CR⁷R⁸NR⁷;

The dotted line indicates the presence of either a single or double bond;

E is NR7:

A is NR8

In another sub-embodiment, a structure of the formula (XI) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 \mathbb{R}^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or $X\mathbb{R}^7$ (X = O, $N\mathbb{R}^8$ or S);

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR⁷R⁵, CR⁷=CR⁸, CR⁷R⁸O and CR⁷R⁶NR⁷:

The dotted line indicates the presence of either a single or double bond;

E is NR?;

Ais S.

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In a particular embodiment of the present invention, the compounds of the formula

(XI) are the following species:

		R ¹	R ⁶	5			
		R^2	R ³	4	(X	I)	
A	E	R	R²	R ³	R	R ⁵	R
0	0	Me	н	H	H	Me	Mo

R ¹ R ⁶ R ⁵ R ² R ⁴									
\mathbb{R}^3 (XI)									
A	E	R,	\mathbb{R}^2	\mathbb{R}^3	R ⁴	R ⁵	R ⁰		
0	0	Ph	H	H	Н	Me	Me		
0	0	Me	Me	Н	H	Me	Me		
0	0	i-Pr	Me	н	H	Me	Me		
0	0	Ph	Me	H	H	Me	Me		
0	0	Me	H	Me	H	Me	Me		
0	0	i-Pr	H	Me	H	Me	Me		
0	0	Ph	н	Me	Н	Me	Me		
0	0	Me	H	Н	Me	Me	Me		
O	0	í-Pr	Н	Н	Me	Me	Me		
0	0	Ph	H	Н	Me	Me	Me		
ō	0	Me	н	CH ₂ Ph	H	Me	Me		
0	0	i-Pr	Н	CH ₂ Ph	н	Me	Me		
0	0	Ph	H	CH ₂ Ph	н	Me	Me		
0	CH ₂	Me	H	н	H	Me	Me		
0	CH ₂	i-Pr	H	н	H	Me	Me		
0	CH ₂	Ph	н	H	H	Mc	Me		
0	CH ₂	Me	Me	Н	H	Me	Me		
0	CH ₂	i-Pr	Me	н	Н	Me	Me		
0	CH ₂	Ph	Me	H	H	Me	Me		

	$ \begin{array}{ccc} R^1 & R^6 \\ E & R^2 \\ R^2 & R^4 \end{array} $ (XD)										
()											
A	Е	R,	\mathbb{R}^2	R ³	R	R5	R				
0	CH ₂	Me	H	Me	н	Me	Мо				
0	CH ₂	i-Pr	H	Me	H	Mo	Me				
0	CH ₂	Ph	H	Me	Н	Me	Me				
ō	CH ₂	Me	H	H	Me	Me	Me				
0	CH ₂	<i>I-</i> Pr	H	H	Me	Me	Me				
0	CH ₂	Ph	H	Н	Me	Me	Me				
ō	CH ₂	Me	II	CH ₂ Ph	H	Me	Me				
0	CH ₂	i-Pr	H	CH ₂ Ph	H	Me	Me				
0	CH ₂	Ph	H	CH ₂ Ph	H	Me	Me				

In a sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

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 R^{J} is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^{7} (X = O, NR^{8} or S).

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester,

alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

 R_1 and R_2 , R_2 and R_3 , R_3 and R_4 , R_4 and R_5 and R_5 and R_6 can also each be comprised of one or two CR_7R_8 groups, connected by a tether, selected independently from groups that include CR_7R_8 , $CR_7R_8CR_7R_8$, $CR_7=CR_8$, CR_7R_8O and $CR_8R_8N_8$.

E and D are selected from the groups that include CR7R8, O, S or NR7;

A is selected from the groups that include O, NR7 or S.

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10 In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaccutically acceptable salts or prodrug are defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfanyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S);

R₁ and R₂, R₂ and R₃, R₃ and R₄, R₄ and R₅ and R₅ and R₆ can also each be comprised of one or two CR₇R₈ groups, connected by a tether, selected independently from groups that include CR₇R₈, CR₇R₆CR₅R₈, CR₇^mCR₈, CR₇R₈O and CR₇R₈NR₇; and

D = O, E = O and A = O.

In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaccutically acceptable salts or prodrug are defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkonyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X=0, NR^8 or S).

 R_1 and R_2 , R_2 and R_3 , R_3 and R_4 , R_4 and R_5 and R_5 and R_6 can also each be comprised of one or two CR_7R_8 groups, connected by a tether, selected independently from groups that include CR_7R_8 , $CR_7R_8CR_7R_8$, $CR_7=CR_6$, CR_7R_8O and $CR_7R_8NR_7$.

D = O, $E = NR^8$ and A = O.

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In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

 R^2 , R^3 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, plasphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

 R^1 and R^2 , R^2 and R^3 , R^3 and R^4 , R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected

independently from groups that include CR^7R^8 , $CR^7R^8CR^7R^8$, $CR^7 = CR^8$, CR^7R^8O and $CR^7R^8NR^7$; and

$$D = O$$
, $E = CR^7R^8$, and $A = O$.

5 In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a matural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 and R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X=0, NR^8 or S).

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁵ ean also each be comprised of one or two CR⁷R⁵ groups, connected by a tether, selected independently from groups that include CR⁷R⁵, CR⁷R⁵CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁵O and CR⁷R⁸NR⁷.

$$D = O$$
, $E = S$ and $A = O$.

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In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl,

heterocyclic, sulfonyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR₇R⁸, CR⁷=CR⁸, CR⁷R⁸O and CR⁷R⁸NR⁷; and

D = O E = O and $A = NR^3$.

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In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, eycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or $XR^T(X = 0, NR^8 \text{ or } S)$:

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfanonyl, carboxylic acid, amide, nitco, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbonydrate or XR⁷ (X = O, NR⁸ or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR⁷R⁸, CR⁷=CR², CR⁷R⁸O and CR²R⁸NR⁷:

D = O, $E = NR^8$ and $A = NR^7$.

In another sub-embodiment, a structure of the formula (XII) is given wherein the 30 compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 \mathbb{R}^1 is selected independently from the groups that include hydrogen, alkyl, cycloslkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or $X\mathbb{R}^7$ (X = O, $N\mathbb{R}^8$ or S):

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfanonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O. NR⁸ or S):

R₁ and R₂, R₂ and R₃, R₃ and R₄, R₄ and R₅ and R₅ and R₆ can also each be comprised of one or two CR₇R₈ groups, connected by a tether, selected independently from groups that include CR₇R₄, CR₇R₆CR₇R₈, CR₇^mCR₈, CR₇R₈O and CR-R₄NR:

D = O, $E = CR^7R^8$ and $A = NR^7$.

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In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S);

R₁ and R₂, R₂ and R₃, R₃ and R₄, R₄ and R₅ and R₅ and R₆ can also each be comprised of one or two CR₇R₈ groups, connected by a tether, selected

independently from groups that include CR_7R_8 , $CR_7R_8CR_7R_8$, $CR_7=CR_8$, CR_7R_8O and $CR_7R_8NR_6$;

D = 0, E = S and $A = NR^7$.

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5 In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylaikyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S);

 R^1 and R^2 , R^2 and R^3 , R^3 and R^4 , R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8 , $CR^7R^8CR^7R^8$, $CR^7m^2CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

 $D = CR^7R^8$, E = 0 and A = 0.

In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable saits or prodrug are defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, sikaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R², R¹, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR² (X = O, NR⁸ or S);

R¹ and R², R² and R³, R³ and R⁴, R² and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R³, CR⁷R⁸CR⁷R³, CR⁷=CR⁸, CR⁷R⁸O and CR⁷R⁸NR⁷:

$$D = CR^7R^8$$
, $E = NR^8$ and $A = 0$.

In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

R¹ is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic animo acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S);

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR²R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁸O and CR⁷R⁸NR⁷;

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$$D = CR^7R^8$$
, $E = CR^7R^8$ and $A = 0$.

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In another sub-embodinient, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S):

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamynl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S);

 R^1 and R^2 , R^2 and R^3 , R^3 and R^4 , R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8 , $CR^7R^8CR^3R^8$, $CR^7=CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

 $D = CR^7R^8$, E = S, and A = O.

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In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S):

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylafkyl, beterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X=0, NR^8 or S);

R¹ and R², R² and R³, R² and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁶CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁶O and CR⁷R⁸NR⁷;

$$D = CR^7R^8$$
, $E = O$ and $A = NR^7$.

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In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 R^3 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S):

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbonydrate or XR^2 (X = O, NR^6 or S);

 R^1 and R^2 , R^2 and R^3 , R^3 and R^4 , R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8 , $CR^7R^8CR^7R^8$, $CR^7=CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

$$D = CR^7R^8$$
, $E = NR^8$ and $A = NR^7$.

In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 R^{1} is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^{7} (X = O, NR^{8} or S):

 \mathbb{R}^2 , \mathbb{R}^3 , \mathbb{R}^4 , \mathbb{R}^5 , \mathbb{R}^6 , \mathbb{R}^7 , \mathbb{R}^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or $\mathbb{X}\mathbb{R}^7$ ($\mathbb{X}=\mathbb{O}$, $\mathbb{N}\mathbb{R}^8$ or \mathbb{S}):

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁵ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁸O and CR⁷R⁸NR⁷;

 $D = CR^7R^8$, $E = CR^7R^8$ and $A = NR^7$.

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In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or produig are defined as follows:

R¹ is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁹ or S);

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or earbohydrate or XR⁷ (X = O, NR⁸ or S);

R¹ and R², R² and R³, R² and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁶CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁶O and CR⁷R⁸NR⁷;

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 $D = CR^7R^8$, E = S and $A = NR^7$.

In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable saits or prodrug are defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cyclealkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S):

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁶CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁶O and CR⁷R⁸NR⁷;

D = S, E = O and A = O.

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In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X=0, NR^8 or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR⁷R⁸, CR⁷=CR³, CR⁷R⁸O and CR⁷R⁸NR⁷;

D = S, $E = NR^8$ and A = O.

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In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S):

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carboxyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S):

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁸O and CR⁷R⁸NR⁷;

D = S, $E = CR^7R^8$ and A = 0.

In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 R^{I} is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, balide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^{7} (X = O, NR^{8} or S);

WO 97/28862 PCY/US91/39951

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁸O and CR⁷R⁸NR⁷:

D = S, E = S, and A = O.

In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or SI:

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbumate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S);

R¹ and R², R² and R³, R² and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR²R³ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR²R⁸, CR⁷=CR⁸, CR⁷R⁸O and CR⁷R⁸NR⁷;

D = S, E = O and $A = NR^7$.

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In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S):

 R^2 , R^3 , R^6 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfannyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, balide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁶O and CR⁷R⁵NR⁷:

D = S, $E = NR^8$ and $A = NR^7$.

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In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 \mathbb{R}^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylaikyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or \mathbb{XR}^7 (X = O, \mathbb{NR}^8 or S):

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbotyldrate or XR^7 (X = O, NR^8 or S);

 R^1 and R^2 , R^2 and R^3 , R^3 and R^4 , R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8 , $CR^7R^8CR^7R^8$, $CR^7=CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

D = S, $E = CR^7R^8$ and $A = NR^7$.

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In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable saits or prodrug are defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkuryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^2 (X=0, NR^8 or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR⁷R⁸, CR⁷...CR⁸, CR⁷R⁸O and CR⁷R⁸NR⁷;

D = S, E = S and $A = NR^7$.

In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 R^{J} is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^{T} (X = O, NR^{S} or S):

 R^2 , R^3 , R^6 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfanonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^2 (X = O, NR^3 or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁸O and CR⁷R⁸NR⁷:

 $D = NR^7$, E = O and A = O.

In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaccutically acceptable salts or prodrug are defined as follows:

R¹ is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S);

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR²R⁸ groups, connected by a tether, selected independently from groups that include CR²R⁸, CR⁷R⁸CR²R⁸, CR²=CR⁸, CR²R⁶O and CR²R⁸NR²:

 $D = NR^7$, $E = NR^3$ and A = 0.

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In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S):

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, suifonyl, suifanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁵ or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁵ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁸O and CR⁷R⁸NR⁷:

 $D = NR^7$, $E = CR^7R^8$ and A = O.

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In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S):

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfanyl, sulfanyl, sulfanyl, sulfanonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X=0, NR^8 or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR⁷R⁸, CR⁷::-CR³, CR⁷R⁸O and CR⁷R⁸NR⁷;

 $D = NR^7$, E = S, and A = O.

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In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S):

 \mathbb{R}^2 , \mathbb{R}^3 , \mathbb{R}^4 , \mathbb{R}^5 , \mathbb{R}^6 , \mathbb{R}^7 , \mathbb{R}^6 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkonyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or \mathbb{XR}^7 (X = O, \mathbb{NR}^8 or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁸O and CR⁷R⁸NR⁷;

 $D = NR^7$, E = O and $A = NR^7$.

In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaccutically acceptable salts or prodrug are defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkeyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S):

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbobydrate or XR⁷ (X = O, NR⁸ or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁸O and CR⁷R⁸NR⁷;

 $D = NR^7$, $E = NR^8$ and $A = NR^7$,

In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

- R¹ is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S);
- R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S);
- 25 R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁻R⁶ groups, connected by a tether, selected independently from groups that include CR⁻R⁶, CR¬R⁶

 $D = NR^7$, $E = CR^7R^8$ and $A = NR^7$.

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In another sub-embodiment, a structure of the formula (XII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or SY):

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbonylytate or XR^7 (X=O, NR^8 or S);

R¹ and R², R² and R², R² and R4, R⁴ and R⁵ and R⁵ and R6 can also each be comprised of one or two CR²R² groups, connected by a tether, selected independently from groups that include CR²R³, CR²R²CR²R³, CR²=CR³, CR²R²O and CR²R⁵NR²;

 $D = NR^7$, E = S and $A = NR^7$.

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In a particular embodiment of the present invention, the compounds of the formula (XII) are the following species:

	$ \begin{array}{c} R^1 \\ R^5 \\ R^2 \\ R^3 \\ R^4 \end{array} $ (XII)										
Ā	D	E	R'	R²	R³	R	R5	R			
0	0	0	Me	H	Н	H	Me	Me			
0	0	0	í-Pr	Н	Н	H	Me	Me			
0	0	0	Ph	Н	H	н	Me	Me			

		R ¹		R ⁶			***************************************	
		R ²	R ³ D	R ⁴		(XII)		
A	D	E	R ⁱ	Rž	R³	R4	R ⁵	\mathbf{R}^{e}
0	0	0	Me	Me	Н	Н	Me	Me
0	0	0	i-Pr	Me	H	H	Me	Me
0	O	0	Ph	Me	Н	H	Me	Me
0	0	0	Me	H	Me	H	Me	Me
0	0	0	i-Pr	Н	Me	H	Me	Me
0	0	0	Ph	Ħ	Me	H	Me	Me
0	0	0	Me	Н	H	Me	Me	Me
0	0	0	i-Pr	Н	Н	Me	Me	Me
0	O.	0	Ph	H	Н	Me	Me	Me
0	O	0	Me	H	CH ₂ Ph	H	Me	Me
0	0	0	i-Pr	H	CH ₂ Ph	H	Me	Me
0	0	ō	Ph	H	CH ₂ Ph	Ħ	Me	Me
0	0	CH ₂	Me	Н	H	H	Me	Me
0	0	CH ₂	i-Pr	H	H	H	Me	Me
0	0	CH ₂	Ph	H	H	H	Me	Me
ō	0	CH ₂	Me	Me	Н	H	Me	Me
ō	0	CH ₂	i-Pr	Me	н	H	Me	Me
0	0	CH ₂	Ph	Me	Н	H	Me	Me
0	0	CH ₂	Me	H	Me	H	Me	Me

		R ⁱ E		₹ ⁶ `R ⁵ `R ⁴				
		R ²	R ³ D	(XII)				
A	D	Æ	R'	Rʻ	R,	R	R ⁵	R°
0	0	CH ₂	i-Pr	H	Me	H	Me	Me
0	0	CH ₂	Ph	H	Me	H	Me	Me
ō	0	CH ₂	Me	Н	Ħ	Me	Me	Me
ō	0	CH ₂	i-Pr	H	H	Me	Me	Me
ō	0	CH ₂	Ph	Н	Н	Me	Me	Me
O	0	CH ₂	Me	н	CH ₂ Ph	H	Me	Me
0	0	CH ₂	i-Pr	H	CH ₂ Ph	H	Me	Me
0	CH ₂	CH ₂	Ph	H	CH ₂ Ph	H	Me	Me
0	CH ₂	CH ₂	Me	H	Н	H	Me	Me
0	CH ₂	CH ₂	<i>i-</i> Pr	Ħ	Н	H	Me	Me
0	CH ₂	CH ₂	Ph	H	Н	H	Me	Me
0	CH ₂	CH ₂	Me	Me	н	H	Me	Me
0	CH ₂	CH ₂	<i>i</i> -Pr	Me	H	H	Me	Me
0	CH ₂	CH ₂	Ph	Me	H	Н	Me	Me
0	CH ₃	CH ₂	Me	H	Me	H	Me	Me
0	CH ₂	CH ₂	í-Pr	H	Me	H	Me	Me
0	CH ₂	CH ₂	Ph	Н	Me	H	Me	Me
0	CH ₂	CH ₂	Me	H	Н	Me	Me	Me
0	CH ₂	CH ₂	i-Pr	Н	Н	Me	Me	Me

		\mathbb{R}^1		R ⁶				
		E R ²	R ₃ T	R ⁵		(XII)		
A.	D	E	R ¹	\mathbb{R}^2	R³	R ⁴	\mathbb{R}^{5}	R
0	CH₂	CH ₂	Ph	H	Н	Me	Me	Me
ō	CH₂	CH ₂	Me	H	CH ₂ Ph	H	Me	Me
0	CH ₂	CH ₂	i-Pr	Н	CH₂Ph	H	Me	Me
0	CH ₂	CH ₂	Ph	Н	CH ₂ Ph	H	Me	Me

In a sub-embodiment, a structure of the formula (XIII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

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 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

 R^2 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X=0, NR^8 or S).

 R_1 and R_2 , R_2 and R_3 , R_3 and R_4 , R_4 and R_5 and R_3 and R_6 can also each be comprised of one or two CR_7R_8 groups, connected by a tether, selected independently from groups that include CR_7R_8 , $CR_7R_8CR_7R_8$, $CR_7=CR_8$, CR_7R_8O and $CR_7R_8NR_7$.

The dotted line indicates the presence of either a single or double bond;

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D is selected from the groups that include CR7R8, O, S or NR7;

A is selected from the groups that include O, NR7 or S.

In another sub-embodiment, a structure of the formula (XIII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylatkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S);

R₁ and R₂, R₂ and R₃, R₃ and R₄, R₄ and R₅ and R₅ and R₆ can also each be comprised of one or two CR₇R₈ groups, connected by a tether, selected independently from groups that include CR₇R₈, CR₇R₈CR₇R₈, CR₇=CR₈, CR₇R₈O and CR₂R₈NR₅; and

The dotted line indicates the presence of either a single or double bond;

D is O;

S

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A is O.

In another sub-embodiment, a structure of the formula (XIII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 \mathbb{R}^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or $X\mathbb{R}^7$ (X = 0, $N\mathbb{R}^8$ or S).

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X=0, NR^8 or S).

R₁ and R₂, R₂ and R₃, R₃ and R₄, R₄ and R₅ and R₅ and R₅ can also each be comprised of one or two CR₇R₈ groups, connected by a tether, selected independently from groups that include CR₇R₅, CR₇R₆CR₇R₈, CR₇^mCR₈, CR₇R₈O and CR₇R₈NR₇.

The dotted line indicates the presence of either a single or double bond;

D is O;

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A is NR7.

In another sub-embodiment, a structure of the formula (XIII) is given wherein the compound or its pharmaceutically acceptable salts or produce is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or SD.

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfamyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphoryl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁸O and CR⁷R⁶NR⁷; and

The dotted line indicates the presence of either a single or double bond;

D is O:

A is S.

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5 In another sub-embodiment, a structure of the formula (XIII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R², R³, R⁴, R⁵, R⁶, R⁷ and R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S).

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁶CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁸O and CR⁷R⁸NR⁷.

The dotted line indicates the presence of either a single or double bond;

D is CR7R8;

AO.

In another sub-embodiment, a structure of the formula (XIII) is given wherein the commound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkoarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S):

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

 R^1 and R^2 , R^2 and R^3 , R^3 and R^4 , R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8 , $CR^7R^8CR_7R^8$, $CR^7=CR^8$, CR^7R^8O and $CR^7R^8NR^7$; and

The dotted line indicates the presence of either a single or double bond;

D is CR7R8;

A is NR7.

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In another sub-embodiment, a structure of the formula (XIII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

 R^2 , R^3 , R^4 , R^6 , R^6 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X=0, NR^8 or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR²R⁸ groups, connected by a tether, selected independently from groups that include CR²R⁸, CR²R⁸CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁶O and CR²R⁸NR⁷;

The dotted line indicates the presence of either a single or double bond;

D is CR7R8;

A is S.

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5 In another sub-embodiment, a structure of the formula (XIII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S):

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S);

R₁ and R₂, R₂ and R₃, R₃ and R₄, R₄ and R₅ and R₅ and R₆ can also each be comprised of one or two CR₇R₈ groups, connected by a tether, selected independently from groups that include CR₇R₈, CR₇R₆CR₇R₈, CR₇=CR₉, CR₇R₈O and CR₇R₈NR₇;

The dotted line indicates the presence of either a single or double bond;

D is S:

A is O.

In another sub-embodiment, a structure of the formula (XIII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R¹ is selected independently from the groups that include hydrogen, alkyl, eveloalkyl, aryl, alkaryl, arylaikyl, heterocyclic, ester, alkearbonyl, carbonyl, halide,

a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S):

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphiny, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or syuthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁸O and CR⁷R⁸NR⁷;

The dotted line indicates the presence of either a single or double bond;

D is S:

A is NR7.

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In another sub-embodiment, a structure of the formula (XIII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S):

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X=0, NR^8 or S):

 R^1 and R^2 , R^2 and R^3 , R^3 and R^4 , R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected

WO 07/78867 PCT/ES01/30951

independently from groups that include CR^7R^8 , $CR^7R^8CR^7R^8$, $CR^7=CR^8$, CR^7R^8O and $CR^7R^8NR^7$:

The dotted line indicates the presence of either a single or double bond;

DisS;

A is S.

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In another sub-embodiment, a structure of the formula (XIII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S);

 R^1 and R^2 , R^2 and R^3 , R^3 and R^4 , R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tother, selected independently from groups that include CR^7R^8 , $CR^7R^8CR^7R^8$, $CR^7=CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

The dotted line indicates the presence of either a single or double bond;

D is NR?;

A is O.

In another sub-embodiment, a structure of the formula (XIII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R², R³, R⁴, R⁵, R⁵, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbonydrate or XR⁷ (X = O, NR⁸ or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR⁷R⁶CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁸O and CR⁷R⁸NR⁷;

The dotted line indicates the presence of either a single or double bond;

D is NR7;

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A is NR8.

In another sub-embodiment, a structure of the formula (XIII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfamyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbumate, csier, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbotrydrate or XR⁷ (X = O, NR⁸ or S);

 R^1 and R^2 , R^2 and R^3 , R^3 and R^4 , R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8 , $CR^7R^8CR^7R^8$, $CR^7=CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

5 The dotted line indicates the presence of either a single or double bond;

D is NR7:

A is S.

In a particular embodiment of the present invention, the compounds of the formula

(XIII) are the following species:

	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$											
A	D	Ri	R²	R ³	R*	R ⁵	R ⁶					
0	0	Me	H	H	Н	Me	Me					
0	0	î-Pr	H	Н	Н	Me	Me					
0	0	Ph	H	н	Н	Me	Me					
0	0	Me	Me	Н	H	Me	Me					
0	0	<i>i</i> -Pr	Me	Н	H	Me	Me					
O	0	Ph	Me	Н	H	Me	Me					
0	0	Me	н	Me	H	Mc	Me					
0	0	i-Pr	Н	Me	H	Me	Me					
0	0	Ph	Н	Me	H	Me	Me					
0	0	Me	Н	Н	Me	Me	Me					

	R		R	5						
R^2 R^3 R^4 (XIII)										
A	D	R ^r	\mathbb{R}^{z}	R³	R ³	R ⁵	R			
0	0	i-Pr	H	н	Me	Me	Me			
0	0	Ph	Н	н	Me	Me	Me			
0	0	Me	Н	CH₂Ph	H	Me	Me			
0	0	í-Pr	н	CH ₂ Ph	H	Me	Me			
0	0	Ph	H	CH ₂ Ph	H	Me	Me			
O.	CH ₂	Me	H	H	Н	Me	Me			
0	CH ₂	i-Pr	H	H	H	Me	Me			
0	CH ₂	Ph	н	H	H	Me	Me			
0	CH ₂	Me	Me	H	H	Me	Me			
0	CH ₂	i-Pr	Me	H	H	Me	Mo			
0	CH ₂	Ph	Me	H	H	Me	Me			
0	CH ₂	Me	H	Me	H	Me	Me			
O	CH ₂	i-Pr	H	Me	H	Me	Me			
ō	CH ₂	Ph	H	Me	H	Me	Me			
0	CH ₂	Me	H	н	Me	Me	Me			
0	CH ₂	i-Pr	H	Н	Me	Me	Me			
0	CH ₂	Ph	H	Н	Me	Ме	Me			
0	CH ₂	Me	н	CH ₂ Ph	Ħ	Me	Me			
0	CH ₂	i-Pr	H	CH ₂ Ph	H	Me	Me			

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e e e e e e e e e e e e e e e e e e e	R	<u>, Į</u>	R ⁶	t ⁵ t ⁴	(XI	II)	
A	D	Ri	R²	R ³	R ⁴	\mathbb{R}^{s}	Re
0	CH ₂	Ph	н	CH₂Ph	Н	Me	Me

In a sub-embodiment, a structure of the formula (XIV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

- \mathbb{R}^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or $X\mathbb{R}^7$ (X = O, $N\mathbb{R}^8$ or S).
- R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkeerbonyl, carbonyl, halide, a residue of a natural or synthetic animo acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S).
 - R₁ and R₂, R₂ and R₃, R₃ and R₄, R₄ and R₅ and R₅ and R₅ can also each be comprised of one or two CR₇R₈ groups, connected by a tether, selected independently from groups that include CR₇R₈, CR₇R₈CR₇R₈, CR₇=CR₆, CR₇R₈O and CR₂R₈NR₇.
 - the dotted line indicates the presence of either a single or double bond;
- 20 B is selected from the groups that include CR⁷R⁸, O, S or NR⁷;
 - G is selected from the groups that include OR7, NR7R8 or SR7.

In another sub-embodiment, a structure of the formula (XIV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR⁷ (X = O, NR⁸ or S);

R₁ and R₂, R₂ and R₃, R₃ and R₄, R₄ and R₅ and R₅ and R₆ can also each be comprised of one or two CR₂R₈ groups, connected by a tether, selected independently from groups that include CR₂R₈, CR₂R₆CR₂R₈, CR₂=CR₃, CR₂R₆O and CR₂R₆NR₇; and

the dotted line indicates the presence of either a single or double bond;

B is O:

G is OR7.

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In another sub-embodiment, a structure of the formula (XIV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 \mathbb{R}^1 is selected independently from the groups that include hydrogen, alkyl, eycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or \mathbb{XR}^7 (X = O, \mathbb{NR}^8 or S).

R², R², R³, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphoryl, phosphine, carbamate, ester,

alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbonydrate or XR^7 (X = O, NR^8 or S).

 R_1 and R_2 , R_2 and R_3 , R_3 and R_4 , R_4 and R_5 and R_5 and R_6 can also each be comprised of one or two CR_7R_8 groups, connected by a lether, selected independently from groups that include CR_7R_8 , $CR_7R_9CR_7R_8$, $CR_7=CR_6$, CR_7R_8O and $CR_7R_8NR_7$.

the dotted line indicates the presence of either a single or double bond;

B is O:

G is NR7R8.

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In another sub-embodiment, a structure of the formula (XIV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X=0, NR^8 or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R³, CR⁷R⁶CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁸O and CR⁷R⁸NR⁷; and

the dotted line indicates the presence of either a single or double bond;

B is O;

G is SR7.

In another sub-embodiment, a structure of the formula (XIV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 and R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X=0, NR^8 or S).

 R^1 and R^2 , R^2 and R^3 , R^3 and R^4 , R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8 , $CR^7R^6CR^7R^8$, $CR^7=CR^8$, CR^7R^8O and $CR^7R^8NR^7$.

the dotted line indicates the presence of either a single or double bond;

B is CR7R8;

GOR7.

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In another sub-embodiment, a structure of the formula (XIV) is given wherein the compound or its pharmaceutically acceptable saits or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S):

R², R³, R⁴, R⁵, R⁶, R⁷, R⁸ are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfanyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro,

cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkearbenyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S):

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR²R⁸ groups, connected by a tether, selected independently from groups that include CR⁷R⁸, CR²R⁵CR₂R⁸, CR⁷=CR⁸, CR⁷R⁸O and CR²R⁸NR⁷; and

the dotted line indicates the presence of either a single or double bond;

B is CR7R8:

10 G is NR⁷R⁸.

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In another sub-embodiment, a structure of the formula (XIV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

 R^2 , R^5 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR⁷R⁸ groups, connected by a tellier, selected independently from groups that include CR⁷R⁸, CR⁷R⁸CR⁷R⁸, CR⁷=CR⁸, CR⁷R⁸O and CR⁷R⁸NR⁷:

the dotted line indicates the presence of either a single or double bond;

B is CR7R8:

GisSR7.

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In another sub-embodiment, a structure of the formula (XIV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

 R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamenyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X=0, NR^8 or S);

 R_1 and R_2 , R_2 and R_3 , R_3 and R_4 , R_4 and R_5 and R_5 and R_6 can also each be comprised of one or two CR_7R_8 groups, connected by a tether, selected independently from groups that include CR_7R_8 , $CR_7R_8CR_7R_8$, $CR_7=CR_8$, $CR_7R_8CR_7R_8$, $CR_7=CR_8$, $CR_7R_8CR_7$, $CR_7=CR_8$, $CR_7R_8CR_7$, $CR_7=CR_8$, $CR_7R_8CR_7$, $CR_7=CR_8$, $CR_7R_8CR_7$, $CR_7=CR_8$, CR_7 , CR

the dotted line indicates the presence of either a single or double bond;

20 B is S;

G is OR7.

In another sub-embodiment, a structure of the formula (XIV) is given wherein the commound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);